

WHAT IS CLAIMED IS:

1. A semiconductor manufacturing apparatus comprising:  
decision means for deciding start of a maintenance operation inside a chamber; and  
5        supply means for supplying a prescribed area inside the chamber with a gas that contains oxygen if start of the maintenance operation has been decided by said decision means.
2. The apparatus according to claim 1, wherein the gas  
10        containing oxygen is clean, dry air.
3. The apparatus according to claim 1, further comprising an open/close sensor for sensing opening and closing of a panel provided in an outer wall of the chamber;
- 15        wherein said decision means decides start of the maintenance operation if said open/close sensor senses that the panel has been opened.
4. The apparatus according to claim 1, further comprising:  
20        determination means for determining whether an environment in the prescribed area of the chamber has attained a safe level; and  
notification means for giving notification of results of the determination based upon said results.
- 25        5. The apparatus according to claim 4, wherein said determination means includes a first sensor for sensing

oxygen concentration, said first sensor being provided inside or in the vicinity of the prescribed area.

6. The apparatus according to claim 4, wherein said determination means includes a second sensor for sensing

5 ozone concentration, said second sensor being provided inside or in the vicinity of the prescribed area.

7. The apparatus according to claim 4, further comprising a fan provided in the vicinity of the

10 prescribed area for being driven at least for a period of time during which said determination means determines that the environment in the prescribed area is not at a safe level.

8. The apparatus according to claim 1, further comprising:

15 determination means for measuring concentration of a predetermined gas component in an environment in the prescribed area of the chamber, thereby determining whether the environment is at a safe level; and

20 a monitor for displaying results of measurement by said determination means.

9. The apparatus according to claim 1, wherein said decision means decides start of the maintenance operation inside the chamber if a command for transition to a maintenance mode has been entered via a control

25 console.

10. The apparatus according to claim 1, further comprising:

determination means for determining whether an environment in the prescribed area of the chamber has attained a safe level; and

a lock mechanism for locking a cover, which is  
5 provided in an outer wall of the chamber, if said determination means determines that the environment is not at the safe level, and unlocking the cover if said determination means determines that the environment is at the safe level.

10 11. The apparatus according to claim 1, wherein a plurality of prescribed areas have been established inside the chamber, and said supply means has a gas supply unit for each of the plurality of prescribed areas.

15 12. The apparatus according to claim 11, wherein said decision means decides start of the maintenance operation for each of the plurality of prescribed areas.

13. The apparatus according to claim 12, wherein said supply means executes supply of the gas from whichever  
20 of the supply units corresponds to a prescribed area for which start of the maintenance operation has been decided by said decision means.

14. The apparatus according to claim 1, further comprising a display, a network interface and a computer  
25 for running network access software;

wherein maintenance information is communicated via a network.

15. The apparatus according to claim 14, wherein the network access software provides said display with a user interface for accessing a maintenance database provided by a vendor or user of the semiconductor

5 manufacturing apparatus, thereby making it possible to obtain information from said database via the Internet or a leased-line network connected to said network.

16. A method of controlling a semiconductor manufacturing apparatus, comprising:

10 a decision step of deciding start of a maintenance operation inside a chamber; and

a supply step of supplying a prescribed area inside the chamber with a gas that contains oxygen if start of the maintenance operation has been decided by said

15 decision step.

17. The method according to claim 16, wherein the gas containing oxygen is clean, dry air.

18. The method according to claim 16, wherein said decision step decides start of the maintenance operation

20 if a panel, which is provided in an outer wall of the chamber, is sensed to have been opened by an open/close sensor for sensing opening and closing of the panel.

19. The method according to claim 16, further comprising:

25 a determination step of determining whether an environment in the prescribed area of the chamber has attained a safe level; and

a notification step of giving notification of results of the determination based upon said results.

20. The method according to claim 19, wherein said determination step determines whether the environment is  
5 at a safe level based upon results of sensing by a sensor for sensing oxygen concentration, said sensor being provided inside or in the vicinity of the prescribed area.

21. The method according to claim 19, wherein said  
10 determination step determines whether the environment is at a safe level based upon results of sensing by a sensor for sensing ozone concentration, said sensor being provided inside or in the vicinity of the prescribed area.

15 22. The method according to claim 19, further comprising a driving step of driving a fan provided in the vicinity of the prescribed area for at least for a period of time during which said determination step determines that the environment in the prescribed area  
20 is not at a safe level.

23. The method according to claim 1, further comprising:

a determination step of measuring concentration of a predetermined gas component in an environment in the  
25 prescribed area of the chamber, thereby determining whether the environment is at a safe level; and

a display step of displaying results of measurement on a monitor by said determination step.

24. The method according to claim 16, wherein said decision step decides start of the maintenance operation

5 inside the chamber if a command for transition to a maintenance mode has been entered via a control console.

25. The method according to claim 16, further comprising:

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10 a determination step of determining whether an environment in the prescribed area of the chamber has attained a safe level; and

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15 a lock control step of locking a cover, which is provided in an outer wall of the chamber, if said determination step determines that the environment is not at the safe level, and unlocking the cover if said  
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20 determination step determines that the environment is at the safe level.

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26. The method according to claim 16, wherein a plurality of prescribed areas have been established inside the chamber, and said supply step supplies a gas from a supply unit provided for each of the plurality of prescribed areas.

27. The method according to claim 26, wherein said decision step decides start of the maintenance operation for each of the plurality of prescribed areas.

28. The apparatus according to claim 27, wherein said supply step executes supply of the gas from whichever of

the supply units corresponds to a prescribed area for which start of the maintenance operation has been decided by said decision step.

29. A method of manufacturing devices, comprising steps  
5 of:

placing a plurality of semiconductor manufacturing apparatus in a plant; and

manufacturing a semiconductor device using said plurality of semiconductor manufacturing apparatus;

10 wherein at least one of said semiconductor manufacturing apparatus includes:

decision means for deciding start of a maintenance operation inside a chamber; and

supply means for supplying a prescribed area inside  
15 the chamber with a gas that contains oxygen if start of the maintenance operation has been decided by said decision means.

30. The method according to claim 29, further comprising the steps of:

20 connecting said plurality of semiconductor manufacturing apparatus by a local-area network;

connecting said local-area network and an external network outside the plant;

acquiring information concerning at least one of  
25 said semiconductor manufacturing apparatus from a database on the external network utilizing said local-area network and said external network; and

controlling said at least one semiconductor manufacturing apparatus based upon the information acquired.

31. The method according to claim 30, wherein  
5 maintenance information for said semiconductor manufacturing apparatus is obtained by accessing, by data communication via the external network, a database provided by a manufacturer of a semiconductor device or by a user of said manufacturing apparatus, or production  
10 management is performed by data communication with a semiconductor manufacturing plant other than the first mentioned semiconductor manufacturing plant via the external network.

32. A semiconductor manufacturing plant, comprising:  
15 a plurality of items of semiconductor manufacturing apparatus;

a local-area network for interconnecting said plurality of semiconductor manufacturing apparatus; and  
a gateway for connecting said local-area network  
20 and an external network outside said semiconductor manufacturing plant;

wherein at least one of said semiconductor manufacturing apparatus includes:

decision means for deciding start of a maintenance  
25 operation inside a chamber; and  
supply means for supplying a prescribed area inside the chamber with a gas that contains oxygen if start of



the maintenance operation has been decided by said decision means.

33. A method of maintaining a semiconductor manufacturing apparatus, comprising the steps of:

5       preparing a database, which stores information relating to maintenance of said semiconductor manufacturing apparatus, on an external network outside a plant at which said X-ray exposure apparatus has been installed;

10       connecting said X-ray exposure apparatus to a local-area network inside said plant; and

          maintaining said X-ray exposure apparatus, based upon information that has been stored in said database, utilizing said external network and said local-area

15       network;

          wherein said semiconductor manufacturing apparatus includes:

          decision means for deciding start of a maintenance operation inside a chamber; and

20       supply means for supplying a prescribed area inside the chamber with a gas that contains oxygen if start of the maintenance operation has been decided by said decision means.